Bill 25 (2019)
Additional Testimony

MISC. COM. 435

ZH

From: CLK Council Info
Sent: Tuesday, July 23, 2019 11:48 PM
Subject: Zoning, Planning and Housing Speaker Registration/Testimony
Attachments: 20190723234747_AlohaCharge_Bill25_Support_Testimony.pdf

Speaker Registration/Testimony

Name	Jim Burness
Phone	808-450-2221
Email	jim@alohacharge.com
Meeting Date	07-25-2019
Council/PH Committee	Zoning
Agenda Item	Bill 25, specifically EV-ready
Your position on the matter	Support
Representing	Organization
Organization	Aloha Charge
Do you wish to speak at the hearing?	Yes
Written Testimony	
Testimony Attachment	20190723234747_AlohaCharge_Bill25_Support_Testimony.pdf
Accept Terms and Agreement	1

Code Amendment Proposal Form
For public amendments proposed to the 2018 editions of the International Codes

DENVER
COMMUNITY PLANNING & DEVELOPMENT

Instructions: Upload this form and all accompanying documentation at www.denvergov.org/BuildingCode. If you are submitting your proposal on a separate sheet, make sure it includes all information requested below.

All proposals must be received by **April 26, 2019**.

CONTACT INFORMATION

Name: Mike Salisbury **Date:** 4/26/2019
Phone: 720 865-5426 **E-mail:** Mike.salisbury@denvergov.org
Organization: Denver Dept of Public Health and Environment

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Signature: Mike Salisbury

Co-proposed by: Matt Frommer, Southwest Energy Efficiency Project
Jim Burness, National Car Charging
Anthony Harrison, Chargepoint
Nate Huyler, Studio Completiva (commercial only)
Colorado Energy Office
Regional Air Quality Council
Jim Smith, Golden Real Estate
Environment Colorado
COPIRG

AMENDMENT PROPOSAL

Please use a separate form for each proposal.

1) Code(s) associated with this proposal. Please use acronym: IECC, IRC

If you submitted a separate coordination change to another code, please indicate which code:

Acronym	Code Name
DBC-AP	Denver Building Code–Administrative Provisions
DBC-*xxxx*	Denver Building Code–*xxxx (code)* amendments (e.g., DBC-IBC, DBC-IEBC)
IBC	International Building Code
IEBC	International Existing Building Code
IECC	International Energy Conservation Code
IFC	International Fire Code
IFGC	International Fuel Gas Code

IGCC International Green Construction Code
IMC International Mechanical Code
IPC International Plumbing Code
IRC International Residential Code

2) Please check here if a separate graphic file is provided: ☐
Graphics may also be embedded within your proposal below.

3) Use this template to submit your proposal or attach a separate file, but please include all items requested below in your proposal. The only formatting needed is **BOLDING**, ~~STRIKEOUT~~ AND UNDERLINING. Please do not provide additional formatting such as tabs, columns, etc., as this will be done by CPD.

Code Sections/Tables/Figures Proposed for Revision:
PART I — IECC: C202, C405.10 (New), C405.10.1 (New), TABLE C405.10.1 (New), C405.10.2 (New), TABLE C405.10.2 (New), C405.10.3 (New), C405.10.4 (New)
PART II — IECC: R202 (IRC N1101.6), R404.2 (IRC N1104.2) (New), R404.2.1 (IRC N1104.2.1) (New), R404.2.2 (IRC N1104.2.2) (New), Table R404.2.2 (IRC N1104.2.2) (New), R404.2.3 (IRC N1104.2.3) (New), R404.2.4. (IRC N1104.2.4) (New)
PART III –IRC: R327

Note: If the proposal is for a new section, indicate (new).

Proposal:

Part 1. Add new text as follows:

2018 International Energy Conservation Code

CHAPTER 2: DEFINITIONS

SECTION C202 GENERAL DEFINITIONS:

Add the following definitions:

Electric Vehicle (EV): A motorized vehicle registered for on-road use, powered by an electric motor that draws current from rechargeable storage that is charged by being plugged into an electrical source.

Electric Vehicle Supply Equipment (EVSE). The electrical conductors and equipment external to the *electric vehicle* that provide a connection between an *electric vehicle* and a power source to provide *electric vehicle* charging.

Electric Vehicle Fast Charger. *Electric vehicle supply equipment* with a minimum power output of 20 kW.

Electric Vehicle Load Management System. A system designed to allocate charging capacity among multiple *electric vehicle supply equipment* at a minimum of 8 amps per charger.

Electric Vehicle Capable Space. A designated parking space that is provided with conduit sized for a 40-amp,

208/240-Volt dedicated branch circuit from a building electrical service panel to the parking space and sufficient physical space in the same *building* electrical service panel to accommodate a 40 amp dual-pole circuit breaker.

Electric Vehicle Ready Space. A parking space that is provided with one 40-amp, 208/240-Volt dedicated branch circuit for *electric vehicle supply equipment* that is terminated at a receptacle, junction box or *electric vehicle supply equipment* within the parking space.

Electric vehicle supply equipment (EVSE) installed space. A parking space with electric vehicle supply equipment capable of supplying current at 40 amps at 208/240 V.

Level 3 Alteration: Alterations where the work area exceeds 50 percent of the original building area or more than 10 parking spaces are substantially modified.

CHAPTER 4:
COMMERCIAL ENERGY EFFICIENCY

SECTION C405: ELECTRICAL POWER AND LIGHTING SYSTEMS

C405.10. Electric Vehicle (EV) charging for new construction and Level 3 Alterations
The *building* shall be provided electric vehicle charging in accordance with this section and the *National Electrical Code (NFPA 70).* When parking spaces are added or modified without an increase in building size or a Level 3 Alteration, only the new parking spaces are subject to this requirement

C405.10.1. Group R occupancies. Group-R occupancies with three or more dwelling units and/or sleeping units shall be provided with *electric vehicle* charging in accordance with Table R405.10.1. Calculations for the number of spaces shall be rounded up to the nearest whole number. All *EVSE Installed, EV Ready* and *EV Capable* Spaces are to be included in the calculation for the number of minimum vehicle spaces required, as provided by the applicable article of the Denver Zoning Code.

Table R405.10.1.

	Number of *EV Ready Spaces*	Number *of EV Capable Spaces*	Number *of EVSE Installed Spaces*
1 space	1	None	None
2 to 9 spaces	1	20% of spaces	None
10 or more spaces	15% of spaces	Remainder of spaces	5% of spaces

C405.10.2 Group A, B, E, I, M and S-2 occupancies. Group A, B, E, I, M and open or enclosed parking garages under S-2 occupancy shall be provided with *electric vehicle* charging in accordance with Table C405.10.2. Calculations for the number of spaces shall be rounded up to the nearest whole number. All *EVSE Installed, EV Ready* and *EV Capable* Spaces are to be included in the calculation for the number of minimum vehicle spaces required, as provided by the applicable article of the Denver Zoning Code.

Table C405.10.2.

	Number of *EV Ready Spaces*	Number of *EV Capable Spaces*	Number of *EVSE Installed Spaces*
1 space	1	None	None
2 to 9 spaces	1	1	None
10 or more spaces	10% of spaces	10% of spaces	5% of spaces

Exception: The number of *electric vehicle supply equipment installed spaces* may be reduced by up to five provided that the *building* includes not less than one parking space equipped with an *electric vehicle fast charger* and not less than one *electric vehicle ready space.*

C405.10.3. Identification. Construction documents shall designate all *electric vehicle capable spaces, electric vehicle ready spaces* and *electric vehicle supply equipment installed spaces* and indicate the locations of conduit and termination points serving them. The circuits or spaces reserved for the circuits for *electric vehicle capable spaces, electric vehicle ready spaces and electric vehicle supply equipment installed spaces* shall be clearly identified in the panel or subpanel directory. The conduit for *electric vehicle capable spaces* shall be clearly identified at both the panel or subpanel and the termination point at the parking space.

C405.10.4. *Accessible* parking
Where new EVSE Installed Spaces and/or new EV Ready Spaces and new accessible parking are both provided, parking facilities shall be designed so that at least one accessible parking space shall be EV Ready or EVSE Installed.

Part 2. Add new text as follows:

2018 International Energy Conservation Code
SECTION R202 (IRC N1101.6) GENERAL DEFINITIONS

CHAPTER 2:
DEFINITIONS

SECTION R202 GENERAL DEFINITIONS:

Add the following definitions:

Electric Vehicle (EV): A motorized vehicle registered for on-road use, powered by an electric motor that draws current from rechargeable storage that is charged by being plugged into an electrical source.

Electric Vehicle Supply Equipment (EVSE). The electrical conductors and equipment external to the *electric vehicle* that provide a connection between an *electric vehicle* and a power source to provide *electric vehicle* charging

Electric Vehicle Load Management System. A system designed to allocate charging capacity among multiple *electric vehicle supply equipment* at a minimum of 8 amps per charger.

Electric Vehicle Capable Space. A designated parking space that is provided with conduit sized for a 40-amp,

208/240-Volt dedicated branch circuit from a building electrical service panel to the parking space and sufficient physical space in the same *building* electrical service panel to accommodate a 40 amp dual-pole circuit breaker.

Electric Vehicle Ready Space. A parking space that is provided with one 40-amp, 208/240-Volt dedicated branch circuit for *electric vehicle supply equipment* that is terminated at a receptacle, junction box or *electric vehicle supply equipment within the parking space.*

Electric vehicle supply equipment (EVSE) installed space. A parking space with electric vehicle supply equipment capable of supplying current at 40 amps at 208/240 V.

Level 3 Alteration: Alterations where the work area exceeds 50 percent of the original building area or more than 10 parking spaces are substantially modified.

CHAPTER 4:
RESIDENTIAL ENERGY EFFICIENCY:

SECTION R404: ELECTRICAL POWER AND LIGHTING SYSTEMS

R404.2. Electric Vehicle (EV) charging for new construction and Level 3 Alterations
The *building* shall be provided *electric vehicle* charging in accordance with this section and the *National Electrical Code (NFPA 70).* When parking spaces are added or modified without an increase in building size or a Level 3 Alteration, only the new parking spaces are subject to this requirement.

R404.2.1. One- to two-family dwellings and townhouses.
Each dwelling unit with a dedicated attached or detached garage, shall be provided with at least one *electric vehicle ready space*. The branch circuit shall be identified as "EV Ready" in the service panel or subpanel directory, and the termination location shall be marked as "EV Ready".

R404.2.2. Group-R occupancies. Group-R occupancies with three or more dwelling units and/or sleeping units shall be provided with electric vehicle charging in accordance with Table R4042.2. Calculations for the number of spaces shall be rounded up to the nearest whole number. All *EVSE Installed, EV Ready* and *EV Capable* Spaces are to be included in the calculation for the number of minimum vehicle spaces required, as provided by the applicable article of the Denver Zoning Code.

Table R404.2.2.

	Number of *EV Ready Spaces*	Number of *EV Capable Spaces*	Number *of EVSE Installed Spaces*
1 space	1	None	None
2 to 9 spaces	1	20% of spaces	None
10 or more spaces	15% of spaces	Remainder of spaces	5% of spaces

R404.2.3. Identification.

Construction documents shall designate all *electric vehicle capable spaces, electric vehicle ready spaces* and *electric vehicle supply equipment installed spaces* and indicate the locations of conduit and termination points serving them. The circuits or spaces reserved for the circuits for *electric vehicle capable spaces, electric vehicle ready spaces and electric vehicle supply equipment installed spaces* shall be clearly identified in the panel or subpanel directory. The conduit for *electric vehicle capable spaces* shall be clearly identified at both the panel or subpanel and the termination point at the parking space.

R404.2.4. *Accessible* parking

Where new EVSE Installed Spaces and/or new EV Ready Spaces and new accessible parking are both provided, parking facilities shall be designed so that at least one accessible parking space shall be EV Ready or EVSE Installed.

Part 3: Delete without substitution
2018 International Residential Code

~~SECTION R327 ELECTRIC VEHICLE CHARGING~~

~~Section R327 Electric vehicle charging is added. R327.1 Electric vehicle charging. For new one- or two-family dwellings, each with a dedicated attached or detached garage, a minimum continuous load of 4800VA shall be included as part of the electrical service load calculations. This additional load shall be permitted to allow the inhabitant(s) the installation of a charging station for electric vehicles without the need of upgrading the electrical service of the dwelling. In addition to the spare power capacity, the premise's electrical panel shall have at least two spare spaces for the installation of a 2-pole breaker for the charging station and conduit shall be routed from the electrical panel to the garage, unless wiring and receptacle for such use are installed.~~

~~Exception: Additions to existing one- or two-family dwellings and townhomes constructed per the IRC are exempt from this requirement.~~

Supporting Information:

Purpose: Add new requirements to the Code

Reason:

In Mayor Hancocks's 80 x 50 Climate Action Plan, Denver set the goal of reducing greenhouse gas (GHG) emissions 80% by 2050. The transportation sector is the second largest source of GHG emissions in Denver and the Climate Action Plan identifies electric vehicles as one of the key ways to reduce GHG coming from vehicles. To achieve these GHG reductions, Denver set a goal that by 2030 30% of vehicles would be electric, growing to 100% of vehicles in 2050 (Denver Department of Public Health and Environment).

To reach these ambitious goals, there will need to be significantly more charging stations available to Denver residents and drivers. The EVI-Pro tool developed by the Department of Energy, estimates that Denver would need to have nearly 10,000 publicly available stations in 2030 and 25,000 charging stations in 2050 to support the vehicle electrification goals (Alternative Fuels Data Center-1). Currently, in Denver there are approximately 350 publicly available charging stations so there is significant need for additional charging stations (Alternative Fuels Data Center-2).

Environmental and Public Health Benefits

In addition to reducing GHG emissions, electric vehicles also help to clean up Denver's air and improve public health by reducing harmful tailpipe emissions compared to gasoline vehicles. The table below shows the reduction in emissions for GHG and NOx and VOC, the two tailpipe pollutants that are precursors to ground level ozone.

Percent Emissions Reduction for an Electric Vehicles Compared to a New Gasoline Vehicle

	2018	2026
GHG	34%	59%
NOx	71%	83%
VOC	99%	99%

EVs provide significant economic benefits for consumers through fuel and maintenance cost savings.

Additional Information

Electric vehicles sales are growing strongly in Colorado, indicating there will be demand for additional stations. In 2018, electric vehicles made up 2.6% of vehicles sales in Colorado and in December of 2018, electric vehicles sales made up 5.36% of vehicles sales in the state. In Colorado, electric vehicle (EV) sales increased by 70 percent from 2017 to 2018 (Auto Alliance).

Data from the Regional Air Quality Council on a subset of existing charging stations in Denver has shown significant growth in usage over the last five years. Between 2014 and 2019, average monthly electricity consumption at charging stations increase from 112 kWh to 318 kWh, an increase of 184%. This increase occurred even as the number of stations increased from nine to 101 over the same period of time.

Due to their lower fueling and maintenance costs, electric vehicles can provide a substantial economic benefit to lower income populations, if they have access to charging stations. Lower income households spend twice as

much of their income on transportation compared to higher income households (Pew) and would benefit the most from access to charging. Without these requirements it will be even more unlikely that property owners and landlords will support the installation of charging stations at lower income properties.

Bibliography

Alternative Fuels Data Center-1. 2019. Electric Vehicle Infrastructure Projection Tool (EVI-Pro) Lite. https://afdc.energy.gov/evi-pro-lite

Alternative Fuels Data Center-2. 2019. Alternative Fueling Station Locator. https://afdc.energy.gov/stations/#/find/nearest

Auto Alliance. 2019. Advanced Technology Vehicle Sales Dashboard. https://autoalliance.org/energy-environment/advanced-technology-vehicle-sales-dashboard/

California Air Resources Board. 2018. EV Charging Infrastructure: Multifamily Building Standards. https://arb.ca.gov/cc/greenbuildings/pdf/tcac2018.pdf

Colorado Department of Local Affairs. 2019. Population Total for Colorado Counties. https://demography.dola.colorado.gov/population/population-totals-counties/#population-totals-for-colorado-counties

Denver Department of Public Health and Environment. 80 x 50 Climate Action Plan. https://www.denvergov.org/content/dam/denvergov/Portals/771/documents/EQ/80x50/DDPHE_80x50_ClimateActionPlan.pdf

Energy Solutions. 2016. Plug In Electric Vehicle Infrastructure Cost-Effectiveness Report. http://evchargingpros.com/wp-content/uploads/2017/04/City-of-SF-PEV-Infrastructure-Cost-Effectiveness-Report-2016.pdf

Pew. 2016. Household Expenditures and Income. https://www.pewtrusts.org/en/research-and-analysis/issue-briefs/2016/03/household-expenditures-and-income

Referenced Standards:

Note: List any new referenced standards that are proposed to be referenced in the code.

Impact:

Cost Impact:

A lack of pre-existing EV charging infrastructure, such as electrical panel capacity, raceways, and pre-wiring, can make the installation of a new charging station cost-prohibitive for a potential EV-owner or station site host. The installation of an EV charging station is made three to four times less expensive when the infrastructure is installed during the initial construction phase as opposed to retrofitting existing buildings to accommodate the new electrical equipment. These additional retrofit costs typically include labor expenses for demolition, trenching and boring, balancing the circuits, and new permitting costs.

New residential and commercial buildings are constructed to last for decades, and so it is critical that EV charging

infrastructure is incorporated at the pre-construction stage to ensure that new buildings can accommodate the charging needs of future EV-owners.

The code change proposal will increase the cost of initial construction, but provide long-term savings for EV owners and charging station hosts through the avoided retrofit costs of installing EV charging infrastructure.

One- and two- family dwellings: The additional costs should be minimal as the current code already requires panel capacity and conduit. They would involve the installation of one 40-ampere, 208/240-volt dedicated branch circuit and a circuit terminating in a receptacle, junction box, or EVSE.

Multi-family residential and commercial:
The cost of making a parking space EV Capable during new construction is estimated at $300 per space.
The cost of retrofitting a parking space to be EV Capable is estimated at $2,500.
The cost of making a parking space EV Ready during new construction is estimate at $1,300 per space.
The cost of retrofitting a parking space to be EV Ready is estimated at $6,300.
(Energy Solutions).

For a new multi-family building with 50 parking spaces, this code amendment is estimated to add $34,100 to the total new construction cost. If the same infrastructure upgrades were made during a later retrofit of the building they are estimated to cost $187,400.

For a new commercial building with 100 parking spaces, this code amendment is estimated to add $36,000 to the total new construction cost. If the same infrastructure upgrades were made during a later retrofit of the building they are estimated to cost $108,000.

Data from the Regional Air Quality Council shows that the cost of installing the station (which includes retrofit costs) is almost twice as much as the cost of the station itself. The average cost of stations which have received grants from the RAQC is $11,690, while the average installation and construction costs have been $20,440 per site.

The overall impact on building costs is low. An analysis done by the California Air Resources Board in 2018, examined the costs of adding EV Ready requirements for new multi-family developments. It found that adding panel capacity and conduit during new construction would add between 0.1% and 0.2% to the total building cost for 1,500 square foot units (California Air Resources Board).

Note: Discuss the impact of this proposal in this section AND indicate the impact of this amendment proposal for each of the following:

- The effect of the proposal on the cost of construction: Increase Reduce No Effect
- The effect of the proposal on the cost of design: Increase Reduce No Effect
- Is the proposal more or less restrictive than the I-codes: More Less Same

Departmental Impact: (To be filled out by CPD staff)

Note: CITY STAFF ONLY. Discuss the impact of this proposal in this section AND indicate the impact of this amendment proposal for each of the following:

• The effect of the proposal on the cost of review: Effect	Increase	Reduce	No
• The effect of the proposal on the cost of enforcement/inspection: Effect	Increase	Reduce	No

Hawaii Solar Energy Association

Serving Hawaii Since 1977

TESTIMONY OF THE HAWAII SOLAR ENERGY ASSOCIATION IN REGARD TO BILL 25, RELATING TO THE ADOPTION OF THE STATE ENERGY CONSERVATION CODE BEFORE THE HONOLULU CITY COUNCIL ON THURSDAY, JULY 25, 2019

Chair Menor. Vice-Chair Waters, and members of the Zoning, Planning, and Housing Committee, my name is Will Giese, and I am the Executive Director of the Hawaii Solar Energy Association, Inc. (HSEA).

The HSEA was founded in 1977 to further solar energy and related arts, sciences and technologies with concern for the ecologic, social and economic fabric of the Hawaiian Islands. Our membership includes the vast majority of locally owned and operated solar installers, contractors, distributors, manufacturers, and inspectors across all islands.

HSEA **SUPPORTS BILL 25**. This ordinance pertains to regulating the design and construction of residential and commercial buildings for the effective use of energy through the adoption of the State Energy Conservation Code (2017), subject to the local amendments within.

Bill 25 seeks to adopt the solar hot water variance into city ordinance, as well as include provisions that address a variety of energy efficient building design standards, and adopt provisions related to the use of electric vehicle charging stations in single and multi-family residences.

COMMENTS RE: SOLAR HOT WATER

On the solar water heating portion of this measure, both the legislature and the state's environmental court were clear in their understanding that renewable energy devices used to heat water are a boon for homeowners. Hawaii is a unique state, with a unique climate that makes it one of the most conducive states to technology like solar thermal heating. That is why Hawaii is the leading market for solar water heating sales in the entire United States.

Ten years ago, the state legislature enacted Act 204 and subsequently Act 155 requiring solar water heaters to be installed on all new single family homes. Act 204 of the 2008 regular legislative session[1] first established §196-6.5 as a means to encourage the adoption of inexpensive and energy efficient water heaters in new single-family home construction. Subsequently, in 2009 the legislature passed Act 155 which, specifically in

[1] See Act 204 and Gov. Msg. No. 947 on June 26, 2008 during the twenty-fourth state legislature in the state of Hawai'i.

Part VII, sought to clarify the administration of the Solar Hot Water Variance Law. Act 155 asserted that variances would be "rarely, if ever, exercised or granted because the burden of proof will lie with the applicant to demonstrate that a solar water heater system, regardless of location or circumstance, is not cost effective in the context of a thirty-year mortgage."

This measure allows the City a means to enforce this state requirement by enshrining a similar requirement into ordinance. It **could go a step further** by requiring that this same standard apply to multi-family housing, which helps reduce the cost of housing for low and middle income communities. In the confines of a 20-30 year mortgage, the cost effectiveness and utility of a solar water heater has been proven time and again to be overwhelming worth it.

The HSEA also offers a point-by-point response to some of the questions regarding the impacts of this measure, in an effort to set the record straight:

- It is absolutely correct that a "one size" water heating solution does not sufficiently address the broad Hawaii water heating market. Bill 25 gives options to consumers for a wide variety of water heating technologies, and allows the homeowner the agency to choose what is most cost-effective for their situation. In fact, section R403.5.5 specifically includes an exception section allowing other water heating technologies to be used when installation of solar hot water is impractical or cost prohibitive, consistent with state law.

- The City & County of Honolulu is not at odds with the state law and variance process, but rather Bill 25 actually serves to alleviate the county of potential liability by granting the Department of Planning and Permitting enforcement abilities over state mandated water heating variances. This power is currently absent from state law.

- Rural residents who depend on clean gas still can depend on gas. Further, to suggest alternate water heating technologies are less resilient and "more vulnerable to natural disasters" is paradoxical and has no factual basis. If the intent is to suggest electrical infrastructure is more vulnerable than gas infrastructure, any potential vulnerability would also impact gas heating technologies as all major manufacturers utilize electronic spark-to-pilot ignition systems in gas water heaters. No electrical grid = no gas heater ignition. Alternatively, solar water heaters with a direct-current circulation pump still provide hot water in the event of a grid outage. Additionally, unlike gas, solar water heaters also come with 80 – 120 gallon tanks, which function as a "battery" that stores hot water during power outages.

- Future home buyers will never pay an amount over $6,000 on average more in energy cost if their option is limited to solar. Solar energy input will never be more costly than gas energy input. Further, their option is not limited to solar. To suggest otherwise is purposefully misleading and ignores the very clear exception clause described in the first bullet point. Additionally, this point presupposes that only solar water heaters are an option, and that new home buyers will be paying *retail* prices, when in fact the cost of the heater will be rolled into the total cost of their home. Finally, unlike gas technology, a consumer utilizing most renewable energy water heating tech (solar thermal, heat pump, PV) does not also have to pay a gas bill, thus they save money over the life of the system.

COMENTS RE: EV CHARGING PULLOUTS

Another part of this bill requires that electrical vehicle charging station pull outs are required in multi-family housing units. There are myriad benefits to electrifying transportation that drastically help the state lower its carbon emissions. By providing sufficient electric vehicle charging stations in multi-family housing, you allow the tenants of these housing units to realize the benefit and cost savings of an electric vehicle, while simultaneously reducing emissions from an ICE or carbon-based fuel burning vehicle by removing it from the road.

Relative to other jurisdictions that have considered adopting similar ordinances or statues, we suggest that the City consider amending Section (17), Subsection C 406.8 as follows:

> C406.8 **Electric vehicle infrastructure.** New residential multi-unit buildings that have eight or more parking stalls, and new buildings that have twelve or more parking stalls, shall be electric vehicle charger ready for at least ~~25~~ 100% percent of the parking stalls. As used in this section, "electric vehicle charger ready" means that sufficient wire, conduit, electrical panel service capacity, overcurrent protection devices and suitable termination points are provided to connect to a charging station capable of providing simultaneously an AC Level ~~1~~ 2 charge per required parking stall for residential and multi-unit buildings. For commercial buildings, at least ~~25~~ 100% percent of the parking stalls are required to be AC Level 2 charger ready. Charge method electrical ratings are provided below:

Hawaii Solar Energy Association
Serving Hawaii Since 1977

CHARGE METHODS ELECTRICAL RATING

Charge Method	Normal Supply Voltage (Volts)	Maximum Current (Amps – Continuous)	Supply power
AC Level 1	120V AC, 1-phase 120V AC, 1-phase	12A 16A	120VAC/20A (12-16A continuous)
AC Level 2	208 to 240V AC, 1-phase	≤ 80A	208/240VAC/20-100A (16-80A continuous)

Requiring 100% Level 2 charging addresses several issues. By requiring 100% compliance, the City ensures that renters and LMI homeowners, who benefit the most from EV cost savings, will be guaranteed a charger whether or not the own the unit or domicile.

The cost to install new infrastructure over retrofits is significantly lower, as demonstrated in Hawaii's Solar Water Heating variance as well as California's New Solar Homes mandate, which lower the cost of installing each unit by 30-75%. Additionally, these costs will be rolled into the purchase prices of the home, rather than an additional cost added later. The argument that mandates like these make housing less affordable is actually untrue. Rather, the cost savings the customer realizes by both avoiding retrofit pricing and by having an EV ready parking stall day 1 outweighs whatever nominal added cost to the purchase price pf the unit.

Level 2 charging, which charges EV at a much faster pace (2-4X faster than Level 1) eliminates so-called "range anxiety" among EV adopters, encourages greater adoption levels, and creates a potential business opportunity for commercial building owners.

The HSEA STRONGLY SUPPORTS BILL 25, and we ask the council to adopt this ordinance subject to our comments above.

Thank you for the opportunity to testify.

P.O. Box 37070 Honolulu, Hawaii 96837
SOLAR HOTLINE (808)232-8371

UNIVERSITY OF HAWAI'I SYSTEM
Legislative Testimony

Testimony Submitted to the
Honolulu City Council's Committee on Zoning, Planning and Housing
July 25, 2019 (9 AM)

By

Charles (Chip) Fletcher
Professor and Associate Dean
School of Ocean and Earth Science and Technology
Vice-Chair, Honolulu Climate Change Commission

Bill 25 (2019) - RELATING TO THE ADOPTION OF THE STATE ENERGY CONSERVATION CODE

Aloha Chair Menor, Vice-Chair Waters, and members of the Committee.

I wish to provide testimony in strong support of Bill 25, "Relating to the Adoption of the State Energy Conservation Code."

Unfortunately, due to prior commitments, I am not able to attend the hearing in person.

I am the Vice-Chair of the Honolulu Climate Change Commission. However, this is not official testimony of the commission – which has been provided separately.

I do enter this testimony as a representative of the University of Hawai'i System.

The climate change problem is growing more severe each year. Just this summer, record-breaking heat waves have scorched Europe, North America, and the Arctic.

World-wide, last month broke the record for hottest June in over 130 years, and July, 2019 is likely to be the hottest single month in recorded history.

Especially disturbing are the accelerating emissions of greenhouse gases. As a result, we see increases in global surface temperature, ocean heat content, extreme weather and associated damage costs, sea level rise, ocean acidity, and area burned by wildfire globally, in the U.S. and in Hawai'i.

Around the world, ice is rapidly disappearing, evidenced by declining trends in minimum summer Arctic sea ice, Greenland and Antarctic ice sheets, and glacier thickness.

Sea level rise is accelerating, and scientists have determined there is a 10% chance that sea level may rise 6.5 ft by the end of this century (Bamber et al., 2019). Would you fly in an airplane if 1 in every 10 flights crashed into the ground leaving no survivors?

Likewise, knowing that this is the chance of a 6.5 ft rise in sea level, it is incumbant upon us all, as leaders and decision-makers for our community, to take meaningful steps to curtail this dangerous future.

Bill 25 is one small step in this direction.

There is an urgent need for action. Despite global efforts, greenhouse gas emissions are still rising, with increasingly damaging effects on Earth's climate. An immense change of scale in human endeavors to conserve our biosphere, and our own future, is needed to avoid untold suffering due to the climate crisis (IPCC 2018).

Despite 40 years of global climate negotiations, with few exceptions, we have generally conducted business as usual and are largely failing to address this predicament. The climate

crisis has arrived and is accelerating faster than many scientists expected. It is more severe than anticipated, threatening natural ecosystems and the fate of humanity.

Especially worrisome are potential climate tipping points and nature's reinforcing feedbacks that could lead to a catastrophic "Hothouse Earth," well beyond the control of humans (Steffen et al. 2018). These climate chain-reactions could cause significant disruptions to ecosystems, society, and economies, potentially making large areas of Earth uninhabitable.

To secure a sustainable future, we must change how we live, in ways that decrease greenhouse gas emissions, that sequester carbon, and that protect our communities from the dangerous impacts of climate change.

Please pass Bill 25. Hopefully it will be the first of many important steps to come that will transform the City and County of Honolulu from a position of vulnerability, into the position of a global leader in resiliency and sustainability.

Our best chance to protect ourselves is through demonstrating leadership on these issues. Your vote will draw attention from around the world, and a vote for Bill 25 will be seen by the industrialized nations as a vote for our future.

J. L. Bamber, et al. (2019) Ice sheet contributions to future sea-level rise from structured expert judgment. *Proceedings of the National Academy of Sciences*, May 20, 2019; DOI: 10.1073/pnas.1817205116

IPCC (2018) The Summary for Policymakers of the Special Report on Global Warming of 1.5°C (SR15) is available at https://www.ipcc.ch/sr15 or www.ipcc.ch.

Steffen et al. (2018) Trajectories of the Earth System in the Anthropocene. *PNAS*, 2018 DOI: 10.1073/pnas.1810141115

From: CLK Council Info
Sent: Wednesday, July 24, 2019 8:23 PM
Subject: Zoning, Planning and Housing Speaker Registration/Testimony

Speaker Registration/Testimony

Name	David Ray Mulinix
Phone	8082398276
Email	dave.mulinix@juno.com
Meeting Date	07-25-2019
Council/PH Committee	Zoning
Agenda Item	Bill 25
Your position on the matter	Support
Representing	Organization
Organization	Our Revolution Hawaii
Do you wish to speak at the hearing?	No
Written Testimony	Aloha Zoning, Planning, and Housing Committee Chair Menor and Committee Members, I am writing on behalf of Our Revolution Hawaii and our 5,000 members and supporters statewide in strong support of Bill 25. We would like a change to the bill's language, changing Level 1 charging to Level 2 charging for EVs. Level 2 is fast becoming the standard nationwide, because it is several times faster, making EVs far more practical for car owners. "Range anxiety" should not prevent people from switching to an EV, which nearly everyone in Hawaii must eventually do, if we are to meet our clean energy goals. According to the latest scientific data we only have about 11 years to avoid permanent climate chaos, so bolder steps, such as requiring PV on all new buildings and more widespread Level 2 EV charging readiness, should be our goal. Please actively support Bill 25 and take a step toward a more livable Earth. Mahalo Nui Loa for your kind attention. Dave Mulinix, Organizer Our Revolution Hawaii
Testimony Attachment	
Accept Terms and Agreement	1

Speaker Registration/Testimony

Name	Cara Chaudron
Phone	8083581636
Email	cchaudron10@gmail.com
Meeting Date	07-25-2019
Council/PH Committee	Zoning
Agenda Item	Bill 25
Your position on the matter	Support
Representing	Self
Organization	
Do you wish to speak at the hearing?	No

Written Testimony

Aloha Chair Menor, Vice Chair Waters, and members of the Committee,

I am testifying in strong support of Bill 25, "Relating to the Adoption of the State Energy Conservation Code."

This is a critical clean energy and climate measure that would modernize the City & County of Honolulu's (Honolulu's) building energy code. This modernization updates Honolulu's existing building energy code—which is over thirteen years out of date—to increase occupant health and comfort while significantly reducing energy use for new homes and buildings. The proposed code revision reflects broad changes in technology, building materials, and best practices, while considering Honolulu's unique island and building environment.

In addition, this measure would ensure that new homes come equipped with either solar or high-efficiency water heaters, helping to close the loophole that has allowed thousands of fossil gas water heaters to be installed in recent housing.

Finally, Bill 25 helps Honolulu make the transition to zero emission vehicles by requiring that a certain percentage of new parking stalls be "EV-ready" (with wiring and capacity for EV chargers to be installed). This will help to make electric vehicles more accessible to residents and reduce the overall cost of our transition to clean transportation. This provision should be strengthened, however, by requiring Level 2 charging capacity in all new parking stalls (for commercial and multi-family buildings), as Vancouver and other cities have done. This will help to "future-proof" new construction and accelerate our clean transportation future.

Please advance Bill 25 with this EV-ready amendment.

Thank you for considering my testimony.

Cara Chaudron, Honolulu, HI 96816

Testimony	
Attachment	
Accept Terms and Agreement	1

From: CLK Council Info
Sent: Wednesday, July 24, 2019 9:12 PM
Subject: Zoning, Planning and Housing Speaker Registration/Testimony

Speaker Registration/Testimony

Name	Wendy Roberts
Phone	8087532387
Email	wendysroberts@gmail.com
Meeting Date	07-25-2019
Council/PH Committee	Zoning
Agenda Item	Bill 25
Your position on the matter	Support
Representing	Self
Organization	
Do you wish to speak at the hearing?	No
Written Testimony	I am in support of keeping good building standards that support clean energy.
Testimony Attachment	
Accept Terms and Agreement	1

From: CLK Council Info
Sent: Thursday, July 25, 2019 5:37 AM
Subject: Zoning, Planning and Housing Speaker Registration/Testimony

Speaker Registration/Testimony

Name	Dwayne A Munar
Phone	8082245105
Email	dwayne_munar@yahoo.com
Meeting Date	07-25-2019
Council/PH Committee	Zoning
Agenda Item	Bill 25
Your position on the matter	Support
Representing	Self
Organization	
Do you wish to speak at the hearing?	No

Written Testimony

Aloha Chair Menor, Vice Chair Waters, and members of the Committee,

I am testifying in strong support of Bill 25, "Relating to the Adoption of the State Energy Conservation Code."

This is a critical clean energy and climate measure that would modernize the City & County of Honolulu's building energy code. This modernization updates Honolulu's existing building energy code—which is over thirteen years out of date—to increase occupant health and comfort while significantly reducing energy use for new homes and buildings. The proposed code revision reflects broad changes in technology, building materials, and best practices, while considering Honolulu's unique island and building environment.

In addition, this measure would ensure that new homes come equipped with either solar or high-efficiency water heaters, helping to close the loophole that has allowed thousands of gas water heaters to be installed in recent housing.

Finally, Bill 25 helps Honolulu make the transition to zero emission vehicles by requiring that a certain percentage of new parking stalls be "EV-ready" (with wiring and capacity for EV chargers to be installed in the future). This will help to make electric vehicles more accessible to residents and reduce the overall cost of our transition to clean transportation. This provision should be strengthened, however, by requiring Level 2 charging capacity in all new parking stalls (for commercial and multi-family buildings), as Vancouver and other cities have done. This will help to "future-proof" new construction and accelerate our clean transportation future.

Mahalo for considering my testimony in support of Bill 25.

Dwayne Munar, Makaha resident

Testimony Attachment	
Accept Terms and Agreement	1

From: CLK Council Info
Sent: Wednesday, July 24, 2019 8:41 PM
Subject: Council/Public Hearing Speaker Registration/Testimony

Speaker Registration/Testimony

Name	James McCay
Phone	8083210027
Email	jmccay@hotmail.com
Meeting Date	07-25-2019
Council/PH Committee	Council
Agenda Item	Bill 25
Your position on the matter	Support
Representing	Self
Organization	
Do you wish to speak at the hearing?	No
Written Testimony	
Testimony Attachment	
Accept Terms and Agreement	1

Aloha Chair Menor and Committee Members,

I'm Jan Pappas, with 350Hawaii.

My husband and I agree with Blue Planet's testimony and support of Bill 25, especially since, with its energy efficiency measures and avoiding fossil fuels, it's estimated the state and its residents will save a jaw-dropping $970 million over 20 years.

If that number doesn't move the Council to action, maybe this year's weather will. Hotter weather and coastline erosion in Hawaii; devastating floods, storms and heat elsewhere. Climate crisis is not on the horizon—it's here.

Fortunately, bold climate action is growing worldwide:

- Shenzhen, China's 16,000 public buses are now all electric
- In Norway, with large government incentives, 30% of cars are now EVs (electric vehicles)
- Portland and Seattle have banned any new fossil fuel infrastructure
- And Berkeley banned natural gas lines in new, low-rise housing

What prompted these bold actions? Concerned elected officials in these places who understood the gravity of climate change and then created policy that made positive change by individual citizens possible. And that's what I want to emphasize: Sometimes you folks in charge must make tough decisions so the rest of us can do the right things (in this case, pass laws that help all of us reduce fossil fuel use).

Hawaii has bold goals, but we've been slow to act...

State law has Hawaii fossil fuel free by 2045; yet, for nine years, a variance allowed gas water heaters. Bill 25 closes that loophole so homeowners can save money, and we all benefit from less fossil fuel use.

Does the Mayor envision the City fleet as fossil fuel free and Oahu having lots of EVs? Well, then we'll need the infrastructure for charging these vehicles.

And right now--bold legislation. The Mayor, the Climate Office, the State Energy Office and regular citizens all want climate action. We just need your go-ahead. The time is NOW. So Go Bold: Support Bill 25.

Thank you for listening.

Janet L. Pappas Ronald H. Yasuda

From: CLK Council Info
Sent: Thursday, July 25, 2019 9:27 AM
Subject: Zoning, Planning and Housing Speaker Registration/Testimony

Speaker Registration/Testimony

Name	Ann RENICK
Phone	808-536-2557
Email	arenick8@gmail.com
Meeting Date	07-25-2019
Council/PH Committee	Zoning
Agenda Item	Bill 25
Your position on the matter	Support
Representing	Self
Organization	
Do you wish to speak at the hearing?	No
Written Testimony	I suppport passage of bill 25 in the interst of a sustainable future for hawaii
Testimony Attachment	
Accept Terms and Agreement	1

From: CLK Council Info
Sent: Thursday, July 25, 2019 11:21 AM
Subject: Zoning, Planning and Housing Speaker Registration/Testimony

Speaker Registration/Testimony

Name	Joshua Ferrer-Lozano
Phone	9095656336
Email	joshuar.f.lozano@gmail.com
Meeting Date	07-25-2019
Council/PH Committee	Zoning
Agenda Item	Bill 25 (2019)
Your position on the matter	Support
Representing	Self
Organization	
Do you wish to speak at the hearing?	No
Written Testimony	Dear Chair Menor and committee members. I am strongly in favor of bill 25 (2019) with local amendments in that it provides critical and very much needed improvements to Oahu's out-of-date building codes. This not only modernizes the electrical grid, this bill will provide co-benefits such as greater efficiency , lower consumer cost of electricity, reduce greenhouse gas emissions (of which reducing to a carbon neutral economy by 2045 is state law) with local amendments to encourage solar water heating and EV ready parking stalls.
Testimony Attachment	
Accept Terms and Agreement	1

July 24, 2019

Honorable Ron Menor, Chair
Honorable Tommy Waters, Vice-Chair
Honolulu City Council Committee on Zoning & Housing
Honolulu Hale
Honolulu, Hawaii 96813-3077

RE: Bill No. 25 - Relating to The Adoption of the State Energy Conservation Code

Chair Menor, Vice-Chair Waters, and members of the Committee:

My name is Gladys Quinto-Marrone, CEO of the Building Industry Association of Hawaii (BIA-Hawaii). Chartered in 1955, the Building Industry Association of Hawaii is a professional trade organization affiliated with the National Association of Home Builders, representing the building industry and its associates. BIA-Hawaii takes a leadership role in unifying and promoting the interests of the industry to enhance the quality of life for the people of Hawaii. Our members build the communities we all call home.

BIA-Hawaii is in opposition to Bill 25. We have strong concerns with regards to the proposed State Energy Conservation Code (SECC), and how it will impact housing affordability in Hawaii. As you all are well aware, Hawaii has the distinction of being one of the most expensive housing markets in the nation. Constricted supply and high demand have resulted in median prices of homes on Oahu currently reaching $800,000. Increasing the supply of housing at all price points, and minimizing the cost of housing construction while not compromising public health or safety, has been the focus of BIA-Hawaii over the last few years.

The proposed amendments to the State Energy Conservation Code are difficult to understand as it involves the following:

- Review of the 2015 International Energy Conservation Code;
- The State's amendments to the 2015 International Energy Conservation Code which were adopted as the State Energy Conservation Code in March of 2017;
- The proposed amendments to the State Energy Conservation Code (March 2017) proposed by the State Building Code Council as Bill No. 25.

The 2015 International Energy Conservation Code has two parts: Commercial and Residential. Our comments are on the proposed amendments to the Residential section of the code.

With respect to section R401.2.1 - Tropical Zone: Proposed amendments:

Exempt louver jalousie windows from the 2015 IEEC on homes below the 2400 ft elevation level based on the following;

- Not more than one half of the area of the dwelling unit is air conditioned
- The dwelling is not heated

Rationale:

The intent/purpose of the energy code is to regulate the design and construction of residential and commercial building for the "effective use of energy" through the adoption of the State Energy Conservation Code 2017.

Bill 25, under Section 3, subsection R401.2.1 of the SECC, and Table R402.2.1 will do the opposite of the stated purpose of the bill and create a **negative, detrimental effect** on the economic and environmental viability of louver jalousie window system and its subsequent decline usage based on the following:

The required weighted average solar heat gain coefficient (SHGC) of .30, .40 with monolithic glass cannot be achieved unless costly add-ons to the dwelling are provided. For example; extended roof eaves, exterior sunshades, trees/shrubs, solar/sun screens. FYI, the solar/sun screens will reduce natural ventilation by as much as 90%, negating the purpose of using louver/jalousie windows.

Monolithic glass, unlike insulated glass (two pieces of glass, inner pane coated with Low E, air space, sandwich) performs very poorly on SHGC performance. The technology to improve the SHGC performance with single pane, monolithic glass to be comparable with insulated glass is not available.

The minimum air leakage of 1.2cfm per square foot (6.1 L/s/m2) for louver/jalousie windows is not reasonable nor justified for a passive, naturally ventilated dwelling under the Tropical Code. The mere design of the louver jalousie window with ¼" (6mm) thick glass blades overlapping a ½" on the adjacent glass blades, providing glass on glass contact is very difficult. Dirt, debris on the glass blades or settling of the dwelling will result in out of plumb/square openings that will prevent the glass blades from closing properly to comply with the 1.2 cfm per square foot requirement.

The louver/jalousie window was designed and built to provide maximum ventilation within the window opening. There is no surrounding frame around the glass with weather seals to provide an air tight seal when closed like sliding, hung, casement, awning window.

Increased Cost, Less demand for Louver Jalousie Window Systems over other window systems:

The proposed SHGC requirement would increase the cost of a louver jalousie widow system over a dual glazed, Low E, horizontal sliding window. This will economically force homeowners to purchase the cheaper window system that will probably require mechanical ventilation with respect to unconditioned homes. Please see the cost comparisons below:

Vinyl surround 4" louver jalousie window 5.0 x 3.0 with standard clear glass
$902 per unit X 20 units (avg. per home) = **$18,902**
Total Cost with Low E glass blades = **$21,000**

Vinyl surround dual glazed vertical/horizontal sliders with Low – E, I.G glass
$312 per unit X 20 units (avg. per home) **$6,240**

Single glazed standard clear glass has a SHGC of .90. Single glazed, hardcoat low e glass has a SHGC of .65, a difference of .25. That mere .25 gain in SHGC will cost 4 times more than the similar sized standard clear glass. The current cost of a jalousie louver window system already exceeds the cost of the comparable sized dual glazed, low e sliding vinyl window by a 3 to 1 ratio.

Please note that the cost of the louver jalousie windows as provided above with the monolithic Low E glass will not meet the proposed SHGC of.30 without added measures such as extended roof overhangs, sunshades, solar/sun screens etc.

For these reasons we would suggest that the louver jalousie window be exempt for this portion of the State Energy Conservation Code adoption.

The Kauai County Council recently passed their own amendments to the SECC. We would ask that their amendments be considered while considering Bill 25:

Kauai County Amendment (Bill 2710):

"R503.2 Change in space conditioning.

Any non-conditioned or low-energy space that is altered to become *conditioned space* shall be required to be brought into full compliance with this code.

Exceptions:

1. Where the simulated performance option in Section R405 is used to comply with this section, the annual energy cost of the proposed design is permitted to be 110 percent of the annual energy cost otherwise allowed by Section R405.3.
2. Split air conditioner systems where the cost to bring the space into full compliance with this code exceeds a five-year payback period based on the additional energy costs of the added space conditioning system. This exemption is subject to use of a split system air conditioner system with a SEER rating in the top 25% of readily available units.

With respect to section C406.8: Electric Vehicle Infrastructure:

This section of the code would require new residential multi-unit buildings that have eight or more parking stalls, and new commercial buildings that have twelve or more parking stalls, to be AC electric vehicle charger-ready for at least 25 percent of the parking stalls. "Electric vehicle charger-ready" means that sufficient wire, conduit, electrical panel service capacity, overcurrent protection devices and suitable termination points are provided to connect to a charging station capable of providing simultaneously an AC Level 1 charge per required parking stall for residential and multi-unit buildings. For commercial buildings, at least 25 percent of the parking stalls would be required to be AC Level 2 charger-ready.

While we understand the desire to provide more charging stations and dedicated parking stalls for electric vehicles to promote "green" transportation, this cost is completely borne by the builder or homeowner, with no incentive; only penalty for non-compliance. This section of the bill represents a further increase in the cost of doing business and purchasing a home in Hawaii. Perhaps an option would be to offer an incentive for the installation of electric vehicle charger-ready infrastructure.

We understand the intent of many of the proposed provisions in Bill 25, but we would ask that the current unattainable cost of housing in Hawaii be considered. We are rapidly moving towards a community where people who were born here cannot afford to stay here. Bill 25 will only exacerbate this issue with respect to the high cost of housing.

BIA-Hawaii is in opposition to Bill 25, and appreciates the opportunity to express our views on this matter.

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Waipahu, HI 96797
www.biahawaii.org
info@biahawaii.org

Castle & Cooke
Hawai'i

630 Iwilei Road, Suite 510
Honolulu, Hawai'i 96817
(808) 548-4811 • Fax (808) 548-2980

Harry A. Saunders
President

Fax Submittal: 768-3827
Email Submittal: http://www.honolulu.gov/ccl-testimony-form.html

July 24, 2019

The Honorable Ron Menor, Chair
The Honorable Tommy Waters, Vice Chair
Committee on Zoning, Planning and Housing

Subject: Testimony in Opposition of Proposed Bill 25 Relating to the Adoption of the State Energy Conservation Code

Dear Chair Menor, Vice Chair Waters and the Committee on Zoning, Planning and Housing:

Castle & Cooke Homes Hawaii, Inc. is in opposition to the following changes in the proposed Energy Conservation Code which increases the cost of homes. We have estimated that Bill 25 will add a minimum of $75 million to the cost of homes at Koa Ridge.

Water Heating: The proposed amendment effectively eliminates instant gas water heaters, which are an efficient and reliable means of heating water. The cost difference between instant gas water heating vs. solar water heating is approximately $10,000 per home. This cost will be passed on to the home buyer. Furthermore, all solar water systems have an electric back up heating element. This means that HECO has to size their generation and distribution systems to accommodate this load. Eliminating gas heaters also reduces the incentive for developers to offer gas ranges and other appliances, meaning that these loads will have to be accounted for as well.

Electric Vehicle Capability: Most affordable housing projects particularly at the lowest end are multi-family. The proposed amendment requires 25% of multi-family parking to be "electric vehicle ready". In addition to the cost of $11,300 per EV ready stall, this amendment creates a host of other problems. Parking stalls are normally attached and conveyed with units. Which unit gets an EV ready stall? Buyers who want EV ready stalls may not get them and buyers who

don't want them may have to pay a premium for equipment that they won't use. The stalls will pull power from the unit's panel, so it is permanently attached to the unit. It's already a struggle to meet the minimum parking requirements, so providing extra stalls is out of the question. EV ready stalls may be ganged in the center of the project, but that leads to other problems as they will have to be individually metered. If power is pulled from a common circuit, sub meters can be used, however, they will add more cost, and the AOUO will have to read them (also, where will they be placed?) and bill each homeowner. Also, these stalls may be far away from the owner's units. The chargers will also have to have security to prevent unauthorized usage while the homeowner is at work, etc. Finally, the chargers will most likely be used during peak electric usage hours. The homeowner will come home, plug in their car, turn on their air conditioning, lights and TV and start cooking using their electric ranges and ovens. Meanwhile, all the common area lights and streetlights will turn on. The transformers and lines within the development will all have to be upsized to accommodate these loads, costs which also get passed on to the home buyer.

The code changes also increase costs in other areas. Homes will have to be built air tight and blower door tested, new ventilation requirements will require additional fans, changes to the window solar heat gain coefficients increase the cost of windows, additional insulation over steel framing adds material and labor cost.

There are additional areas that we have not yet identified the cost impacts. However we must question why we are making policy that significantly increases the cost of housing in the middle of a housing crisis.

We request that Bill 25 be held and that a working group including the impacted trades, builders, developers and the Department of Planning and Permitting be formed to address the goals of this bill in a more affordable, practical and consumer friendly manner.

Thank you for this opportunity to comment on your propose Bill 25.

Sincerely,
Castle & Cooke Hawai'i

Harry A. Saunders

HAWAIIGAS
THE CLEAN ENERGY COMPANY

Testimony to the Zoning Planning and Housing Committee

Thursday, July 25, 2019 9:00 a.m.
Council Committee Meeting Room, Honolulu Hale
RE: Bill 25 (2019) – Relating to the County Energy Conservation Code

Aloha Chair Emeritus Menor, Vice Chair Waters and Members of the Committee:

Thank you for the opportunity to testify on behalf of Hawaii Gas, a company who has served Hawaii for more than 115 years. Our 340 employees statewide (including 225 Oahu employees) work collectively 24/7, 365 days of the year to provide clean energy to residents and commercial customers on each major island.

Hawaii Gas supports the city's clean energy goals and sensible legislation that aims to mitigate climate change; however, we oppose the provision to amend Subsection R403.5.5 of the IECC, adopted by the SECC, that would eliminate the choice for residents to use economical and efficient gas-powered water heaters in their homes. Taking away clean choices such as natural gas, propane and renewable natural gas is a step in the wrong direction.

Hawaii Gas continues to develop clean energy for our state, beyond natural gas: in 2016, HG diversified its energy production by adding Waihonu Solar Farm, located in Mililani, to its energy mix.

In December 2018, Hawaii Gas began producing renewable natural gas (RNG) from the City and County of Honolulu's Honouliuli Wastewater Treatment Plant (HWWTP) in Ewa Beach. This project has been a clear win for taxpayers, the City and County, gas customers, and for the planet:

- HWWTP RNG is providing a new income stream for the City, generating over $1.6 million/annually from the raw methane now captured from waste;
- This raw methane, which previously had been flared into the atmosphere, is now being captured, purified and blended with the synthetic natural gas (SNG) used by HG utility customers;
- HWWTP can produce up to 800,000 therms annually, enough energy to supply more than 6,000 homes using gas appliances to cook, heat water and dry laundry;
- The production of RNG is displacing Honolulu's need for 15,000 barrels of oil annually and removing the carbon dioxide emissions equivalent to 400 cars annually from being flared at HWWTP.

The local building code change related to limiting gas-powered water heaters will have an impact on HG's ability to advance more RNG projects, as well as impact the company's ability to continue to provide affordable, clean energy choices for residents and businesses that rely on our energy to meet their daily needs.

As technology continues to advance, government should not pick winners and losers. Instead the city and state should be technology agnostic. Preserving the freedom for homeowners to choose how they heat their water is especially important given Hawaii is so remote and lacks the ability to easily move energy from one island to the next.

HAWAI'IGAS
THE CLEAN ENERGY COMPANY

A positive benefit that is often overlooked is that gas-powered water heating technology can run on renewable natural gas! This technology continues to advance so that it is affordable (without the benefit of tax credits or subsidies), energy efficient, reliable and now in Honolulu runs on renewable fuel. By prematurely eliminating this option at this juncture in our collective journey for 100% clean energy future, Hawaii residents would ultimately lose out. In fact, this technology, when run on renewable fuel, is directly in line with the original intent of Act 204 (2008) to increase the use of renewable energy to protect the environment, reduce pollution, make housing more affordable, and enhance Hawaii's local economy. Furthermore, it enhances Hawaii residents' resiliency.

Highly portable, disaster-resistant fuels such as natural gas also play critical roles in shoring up homeowner resiliency and redundancies in the event of natural disasters or even cloudy weather. During emergencies, we prioritize supplies for emergency responders and facilities that provide life-supporting services to our communities such as medical centers and home care facilities. If the electrical grid goes down, many of the solar hot water heaters in the state will cease to operate – and the grid tends to go down disproportionately in parts of rural Hawaii such as the North Shore, Windward and Leeward coasts. More than 1,000 miles of our gas utility pipeline is underground and protected from severe weather impacts, ensuring these customers the ability to not only heat water for comfort but also for sanitation and cooking.

It is critical that Hawaii maintain a diverse energy supply portfolio as evidenced in the recent island wide power outages experienced in Kauai this week and in the lessons learned in the aftermath of hurricanes in Puerto Rico and Texas. Locally, this was the case in Kauai after Hurricane Iniki, and during the heavy rains and floods that occurred also on Kauai and in Honolulu where residents relied on gas to have hot water and cook during the time of the recovery.

In closing, I urge you to continue to allow our residents to have a choice in water heating options that are right for them in terms of affordability, dependability and resiliency.

Thank you for the opportunity to testify on this bill.

Sincerely,

Alicia C. Moy
President & CEO

Name: **Gail Johnson**
Email: **gjohnson@noritz.com**
Phone: **801-440-1460**
Meeting Date: **July 25, 2019**
Agenda Item: **Bill 25 (2019)**
Position: **OPPOSE**

Chair Emeritus Menor, Vice Chair Waters and members of the Committee,

I am testifying **in opposition** of Bill 25, relating to the adoption of the state energy conservation code, in its current form.

As part of the measure, Bill 25 would require new homes to be built with solar water heaters, taking away homeowners' options to use more economical and more reliable gas water heaters.

Please allow me to share how Gas benefits my family personally and professionally.
My family enjoys the many benefits of natural gas in our home such as water heating, cooking and heating. Gas in our home is the most reliable energy source as it has provided us these comforts even during normal weather phenomena such as cloud cover and rain / storm events. Gas has also afforded us an energy choice. As a gas and electric customer, having both energy sources available forces utility providers to seek out new technologies and methods to reduce energy costs and to become more efficient and accountable to their customers and the environment.

Professionally, Clean Natural gas has also fueled my career at Noritz America; a manufacturer in the Plumbing & Heating Industry. I have observed how clean natural gas has been adopted across the country by builders, home owners and businesses. I have witnessed the benefits of gas play out in our customers lives first hand. In response to these customer's needs, Noritz and other Gas appliance manufacturers are continuously improving our efficiencies, emissions, and manufacturing practices to exceed the most stringent codes and become more sustainable. In fact, gas appliances today boast thermal efficiencies as high as 98% and produce less than 14ppm of NOx emissions. Partnering these efficiencies with gas utility measures such as implementation of Renewable Natural Gas has made Natural Gas a sound choice.

I have a tankless water heater in my home. It is 97% efficient and only puts out 14ppm of NOx emissions. Going from a tank to a tankless my gas consumption was cut by 60%. With tankless it only runs when you are using hot water.

Gas is reliable. It is cost-effective. This is not an easy change. It is not an inexpensive change. It is not a reliable change. And, I do not believe forcing businesses to make that change down the line would have the positive effect Bill 25's supporters would like you to believe it will.

When it comes to moving toward a cleaner future, there is a way to do it without putting financial strain on homeowners or businesses. This is not that way. I urge you to vote **NO** on Bill 25.

Sincerely,

Gail Johnson

From: CLK Council Info
Sent: Thursday, July 25, 2019 4:48 AM
Subject: Zoning, Planning and Housing Speaker Registration/Testimony

Speaker Registration/Testimony

Name	Derwin Chu
Phone	8083883721
Email	Derwin.chu@pepsico.com
Meeting Date	07-25-1970
Council/PH Committee	Zoning
Agenda Item	Bill 25
Your position on the matter	Oppose
Representing	Self
Organization	
Do you wish to speak at the hearing?	No
Written Testimony	I am writing in opposition to Bill 25. I have an instantaneous gas water heater and I love it. This option should NOT be taken away from Oahu residents. I strongly urge you to not support Bill 25. Mahalo.
Testimony Attachment	
Accept Terms and Agreement	1

From: CLK Council Info
Sent: Thursday, July 25, 2019 4:45 AM
Subject: Zoning, Planning and Housing Speaker Registration/Testimony

Speaker Registration/Testimony

Name	ZOE WILLIAMS
Phone	8083883721
Email	zoesterbmc@gmail.com
Meeting Date	07-25-2019
Council/PH Committee	Zoning
Agenda Item	Bill 25
Your position on the matter	Oppose
Representing	Self
Organization	
Do you wish to speak at the hearing?	No
Written Testimony	Aloha, I am writing to oppose Bill 25. With one exception, I have had gas in my home my whole life; I know the difference between an electric and a gas water heater. Gas is so much better! Please, please, please do not take this option away from us. Without this option it will be harder to justify gas stoves (my husband loves cooking with gas!), clothes dryers, etc. Gas is so much cleaner burning than the petroleum products used to create electricity; and less expensive too! For locals trying to make ends meet, gas is a much better option. I strongly urge you to vote NO on Bill 25. Mahalo.
Testimony Attachment	
Accept Terms and Agreement	1

Hawai'i
Construction
Alliance

P.O. Box 179441
Honolulu, HI 96817
(808) 220-8892

July 25, 2019

The Honorable Ron Menor, Chair
The Honorable Tommy Waters, Vice Chair
and Members
Honolulu City Council Zoning, Planning Housing Committee
530 South King Street, Room 202
Honolulu, Hawai'i 96813

RE: Reservations about BILL 25 (2019) – RELATING TO THE ADOPTION OF THE STATE ENERGY CONSERVATION CODE

Dear Chair Menor, Vice Chair Waters, and members:

The Hawai'i Construction Alliance is comprised of the Hawai'i Regional Council of Carpenters; the Operative Plasterers' and Cement Masons' Union, Local 630; International Union of Bricklayers & Allied Craftworkers, Local 1; the Laborers' International Union of North America, Local 368; and the Operating Engineers, Local Union No. 3. Together, the member unions of the Hawai'i Construction Alliance represent 15,000 working men and women in the basic crafts of Hawai'i's construction industry.

We write to your committee about our deep concerns regarding THREE provisions of Bill 25 that we feel would adversely affect construction of housing in Honolulu.

Honolulu already has one of the highest median home sales prices in the entire country, and even the slightest increase in the price of a home could stop a development from being built.

Since the single-family home market is the largest generator of work hours for our members, we are extremely sensitive in any increases in the cost of housing.

Section R403.5.5 regarding solar water heating substantially increases the price of a house while eliminating the potential to use a renewable biogas option by mandating that builders go through the variance process in order to install gas lines.

Section C406.8 regarding electric vehicle infrastructure would also substantially increase the cost of building, especially when more cost effective measures of vehicle charging are coming to market.

Section R401.2.1 regarding "tropical zone" residential buildings limiting the amount of air conditioning to half of the area of the unit may make it unattractive for homebuyers who wish to have their entire cooled (particularly for unites located on the Ewa plain).

While the other revisions to the Energy Code are beneficial to conserving energy, we feel that that these 3 measures could push up the price of housing to the point where developers choose NOT to build, and our members would be adversely affected.

Therefore, we request your committee's revision to the three sections mentioned in Bill 25 (2019).

Mahalo,

Nathaniel Kinney
Executive Director
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